

RAMTX100 TRANSMITTER TUNE UP PROCEDURE

PERFORMANCE TEST

The procedure in this chapter allows the verification of the electrical performance of RAMTX100. These tests do not require access to the interior of the instrument.

Recommended test equipment

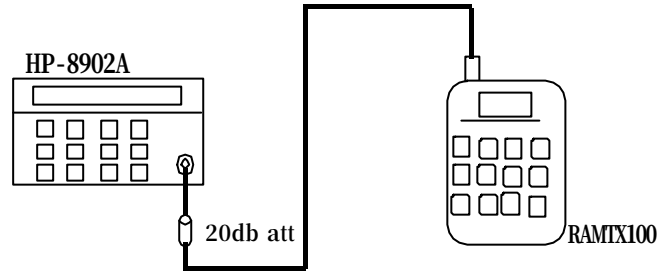
Description	Minimum specification	Model
Power meter	+ / - 0.2dB, - 60 to -20dBm, 100 KHz to 1GHz	HP-436A/8481D
Spectrum analy	100KHz to 3GHz, up to -120 dBm	HP-8591E
Measuring rece	0.2 to 1300MHz, 0 to -125dBm, Freq Counter	HP-8902A
Oscilloscope	DC to 100MHz, 5mV to 1V/div, Rise Time capavi	TEK TDS360
Frequency Cou	+ / - 0.1ppm, 10Hz ~ 1GHz, 9digit	HP-53181A
Attenuator	10W, 20dB Att, DC to 1GHz	Tescom 99910

1. Frequency Accuracy

Frequency : 457.575MHz

Stavility : Same as reference oscillator accuracy. Internal 1ppm 0 to 50degC

1.Test Setup



Carrier frequency accuracy test

2. HP-8902A : auto tuning, frequency display

3. RAMTX100

- 1) Connect 20dB Attenuators
- 2) Power On
- 3) 1 enter

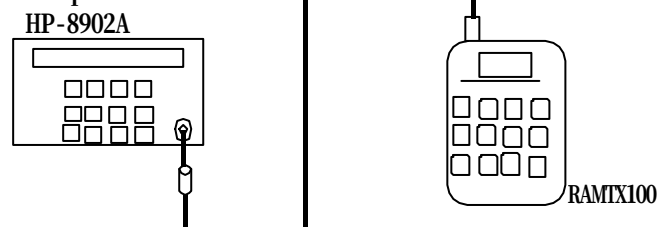
TC-1950A FREQ	Lower Limit	Actual	Upper Limit	Remarks
457.575MHz	457.5550		457.5950	

2. RF Output Level Accuracy

RF level : 25dBm

Accuracy : +/- 1dB

1.Test Setup



2.HP-8902A : Auto-tuning, RF Power

3.RAMTX100:

- 1) Connect 20dB Attenuators
- 2) Power On
- 3) 1 enter

Level	RAMTX100 Output mod on/off (MHz)	Lower Limit	Actual	Upper Limit	Remark
25dBm	Service Off	24		26	

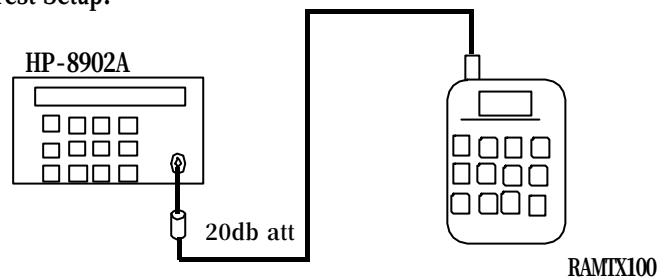
3. Spectral Purity

3.1. Residual FM Noise

RMS Noise : <10Hz Typ, 300Hz ~ 3KHz

<70Hz Typ, 50Hz ~ 3KHz

1. Test Setup.



2. HP 8902A : FM, RMS, Filter BW 300Hz ~ 3KHz

3.RAMTX100 :

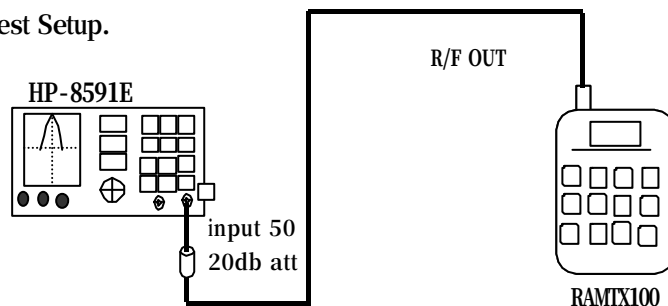
- 1) Connect 20dB Attenuators
- 2) Power On
- 3)1 enter

8902 Filter BW		Actual	Limit (Hz)	Remark
HPF	LPF			
300Hz	3KHz		10Hz	
50Hz	3KHz		70Hz	

3.2. Harmonic Spurious :

Harmonic Level at 2xFOUT : <-60dBc

1. Test Setup.



Harmonice test

2. HP 8591E : Span = 500KHz, RBW = 10KHz, VBW = 30KHz.

3.RAMTX100 :

- 1) Connect 20dB Attenuators
- 2) Power On
- 3) 1 enter

RAMTX100 Harmonic Spurious

Fout(MHz)	Spurious(MHz)	level(dBm)	Fout-2*Fout	Limit	Remark
457.5750	915.1500			-60dbc	

4. Modulation

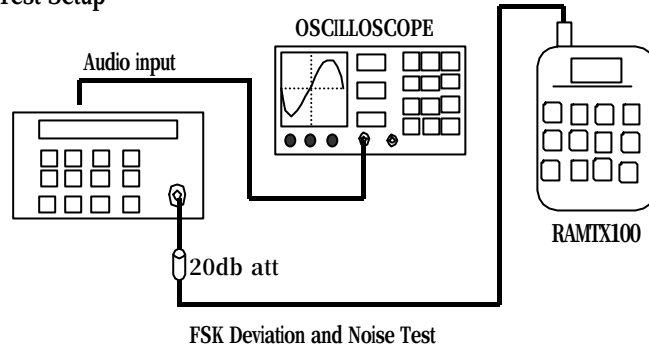
4.1. FM(RECT) (Internal F S K Test Patterns)

Deviation Accuracy

Deviation : 4.5KHz,

Accuracy : +/-5% ($4.275 < FM < 4.725$)@4.5KHz

1.Test Setup



2.Equipment

HP-8902A : FM, AVG, HPF=OFF, LPF=15KHz

TDS360 : 250us/div, 500mV/div Average : 16

3. RAMTX100

2) Power On

3) 1 enter

4. Read FM Deviation in RMS.

<u>DEV(WATERCALL)</u>	<u>Limit</u>
4.5KHz	4.5KHz + - 5%

Table : F S K Deviation Accuracy

Item	Lower	Actual	Upper	Remark
Deviation (AVG)	4.275		4.725	

TX 100 Specification

Carrier Frequency: 457.575MHz +/- 200Hz

Stability : +/- 1.5ppm -10°C to 50°C, +/- 1.0ppm/year Aging

FM Modulation:

Deviation: 4.5kHz

FM Accuracy: +/- 5% 4.275 < 4.5 < 4.725 kHz

Data Rate: 1200 BPS (600Hz +/- 5Hz)

Residual FM: Less than 5Hz, 300Hz HPF and 3kHz LPF

RF Output: 26dBm +/- 1dB Maximum (0.5W)

Power: DC 9V, 500mA, AC Adapter

Dimension:

Weight:
